

## CLAIMS

What is claimed is:

1. A method for displaying images in a medical navigation system  
5 assisted by x-ray images, said method comprising:  
    calibrating an x-ray device in the medical navigation system;  
    producing a plurality of two-dimensional x-ray images of a patient using the  
x-ray device;  
    during the producing step, determining positions of the x-ray device using  
10 the medical navigation system, said determining step producing positional data;  
    converting data associated with the two-dimensional x-ray images into  
three-dimensional data;  
    transferring (i) the two-dimensional x-ray images, (ii) x-ray device positional  
information corresponding to the two-dimension x-ray images, and (iii) the three-  
15 dimensional data to the navigation system; and  
    displaying at least the two-dimensional x-ray images on an image output of  
the medical navigation system.
2. The method as set forth in claim 1, the calibrating step includes  
20 determining a position of the x-ray device in relation to a calibration phantom  
using the navigation system.
3. The method as set forth in claim 1, wherein the calibrating step  
includes producing transformational matrices concerning spatial positions of the  
25 two-dimensional x-ray images.
4. The method as set forth in claim 3, wherein the transformational  
matrices assigned to individual two-dimensional x-ray images are also transferred  
to the navigation system when the two-dimensional x-ray images are transferred.

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5. The method as set forth in claim 1, wherein the calibrating and producing steps are performed using a C-arm x-ray device.

6. The method as set forth in claim 5, wherein the step of producing a plurality of two-dimensional x-ray images includes producing a series of isocentric x-ray images.

7. A program which, when running on a computer or loaded onto a computer, causes the computer to perform a method in accordance with claim 1.

8. A machine-readable medium having stored thereon sequences of instructions that, when executed, cause at least an x-ray device and a navigation system to:

- calibrate the x-ray device in the medical navigation system;
- produce a plurality of two-dimensional x-ray images of a patient using the x-ray device;
- determine positions of the x-ray device using the medical navigation system to produce positional data;
- convert data associated with the two-dimensional x-ray images into three-dimensional data;
- transfer (i) the two-dimensional x-ray images, (ii) x-ray device positional data corresponding to the two-dimensional x-ray images, and (iii) the three-dimensional data to the navigation system; and
- display at least the two-dimensional x-ray images on an image output of the medical navigation system.